# SandRidge Energy

**North Park Basin**
**T7N-R80W-S9**
**Janet 0780 1-16H21**

**Wellbore #1**
**Design #1**

# Anticollision Summary Report

**18 December, 2017**

# SandRidge Energy

## Anticollision Summary Report

| | | | |
|---|---|---|---|
| **Company:** | SandRidge Energy | **Local Co-ordinate Reference:** | Well Janet 0780 1-16H21 |
| **Project:** | North Park Basin | **TVD Reference:** | WELL @ 8151.0usft (Original Well Elev) |
| **Reference Site:** | T7N-R80W-S9 | **MD Reference:** | WELL @ 8151.0usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | Grid |
| **Reference Well:** | Janet 0780 1-16H21 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | Wellbore #1 | **Database:** | EDMProd |
| **Reference Design:** | Design #1 | **Offset TVD Reference:** | Offset Datum |

**Reference** Design #1

| | | | |
|---|---|---|---|
| **Filter type:** | NO GLOBAL FILTER: Using user defined selection & filtering criteria | WARNING: There is hidden tight data in this project | |
| **Interpolation Method:** | Stations | **Error Model:** | ISCWSA |
| **Depth Range:** | Unlimited | **Scan Method:** | Closest Approach 3D |
| **Results Limited by:** | Maximum center-center distance of 10,000.0 usft | **Error Surface:** | Pedal Curve |
| **Warning Levels Evaluated at:** | 2.00 **Sigma** | **Casing Method:** | Not applied |

**Survey Tool Program** **Date** 12/18/2017

| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description |
|---|---|---|---|---|
| 0.0 | 17,487.6 | Design #1 (Wellbore #1) | Sperry MWD | Fixed:v2:standard declination |

**Summary**

| Site Name / Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| T7N-R80W-S16 | | | | | | |
| Pintail SWD 0780 1-16D - Wellbore #1 - 33 deg | 8,427.1 | 8,300.6 | 1,441.7 | 1,363.2 | 18.371 | CC, ES |
| Pintail SWD 0780 1-16D - Wellbore #1 - 33 deg | 8,600.0 | 8,196.6 | 1,448.3 | 1,368.6 | 18.179 | SF |
| Pintail SWD 0780 1-16D - Wellbore #1 - 60 Deg | 10,736.7 | 7,531.4 | 1,296.5 | 1,210.8 | 15.117 | CC |
| Pintail SWD 0780 1-16D - Wellbore #1 - 60 Deg | 10,800.0 | 7,492.3 | 1,297.4 | 1,210.6 | 14.961 | ES |
| Pintail SWD 0780 1-16D - Wellbore #1 - 60 Deg | 11,000.0 | 7,390.9 | 1,312.2 | 1,222.9 | 14.681 | SF |
| Pintail SWD 0780 2-16D - Wellbore #1 - Design #1 | 11,113.6 | 6,351.4 | 2,766.8 | 2,686.3 | 34.386 | CC |
| Pintail SWD 0780 2-16D - Wellbore #1 - Design #1 | 11,200.0 | 6,356.2 | 2,768.1 | 2,686.0 | 33.701 | ES |
| Pintail SWD 0780 2-16D - Wellbore #1 - Design #1 | 12,200.0 | 6,411.4 | 2,971.8 | 2,873.5 | 30.221 | SF |
| Pintail SWD 0780 3-16D - Wellbore #1 - Design #1 | 11,598.6 | 7,666.6 | 985.8 | 887.9 | 10.075 | CC |
| Pintail SWD 0780 3-16D - Wellbore #1 - Design #1 | 11,600.0 | 7,666.8 | 985.8 | 887.9 | 10.069 | ES |
| Pintail SWD 0780 3-16D - Wellbore #1 - Design #1 | 11,900.0 | 7,709.8 | 1,029.9 | 921.6 | 9.508 | SF |
| T7N-R80W-S9 | | | | | | |
| Castle 0780 5-17H20 - Wellbore #1 - Design #1 | 2,500.0 | 2,483.0 | 549.2 | 538.3 | 50.249 | CC |
| Castle 0780 5-17H20 - Wellbore #1 - Design #1 | 2,600.0 | 2,581.1 | 549.3 | 538.0 | 48.340 | ES |
| Castle 0780 5-17H20 - Wellbore #1 - Design #1 | 17,488.6 | 18,914.6 | 2,642.9 | 2,238.6 | 6.538 | SF |
| Castle 0780 6-17H20 - Wellbore #1 - Design #1 | 2,608.8 | 2,593.8 | 542.5 | 531.0 | 47.499 | CC |
| Castle 0780 6-17H20 - Wellbore #1 - Design #1 | 2,800.0 | 2,781.6 | 542.9 | 530.6 | 44.333 | ES |
| Castle 0780 6-17H20 - Wellbore #1 - Design #1 | 17,488.6 | 18,579.0 | 1,982.8 | 1,579.3 | 4.913 | SF |
| Castle 0780 7-17H20 - Wellbore #1 - Design #1 | 2,800.0 | 2,785.0 | 536.1 | 523.8 | 43.654 | CC |
| Castle 0780 7-17H20 - Wellbore #1 - Design #1 | 2,900.0 | 2,881.3 | 536.4 | 523.7 | 42.193 | ES |
| Castle 0780 7-17H20 - Wellbore #1 - Design #1 | 17,488.6 | 18,354.9 | 1,323.3 | 919.3 | 3.276 | SF |
| Castle 0780 8-17H20 - Wellbore #1 - Design #1 | 3,500.0 | 3,483.0 | 530.0 | 514.6 | 34.364 | CC |
| Castle 0780 8-17H20 - Wellbore #1 - Design #1 | 17,488.6 | 18,294.6 | 665.9 | 262.6 | 1.651 | Level 4, ES, SF |
| Gregory 0780 1-9H - Wellbore #1 - Wellbore #1 | 4,671.6 | 4,663.0 | 234.9 | 214.6 | 11.585 | CC |
| Gregory 0780 1-9H - Wellbore #1 - Wellbore #1 | 4,700.0 | 4,690.6 | 235.0 | 214.6 | 11.518 | ES |
| Gregory 0780 1-9H - Wellbore #1 - Wellbore #1 | 6,200.0 | 6,190.7 | 262.8 | 235.7 | 9.692 | SF |
| Gregory 0780 2-9H - Wellbore #1 - Design #1 | 4,705.0 | 4,698.3 | 365.4 | 344.5 | 17.513 | CC, ES |
| Gregory 0780 2-9H - Wellbore #1 - Design #1 | 5,200.0 | 5,175.0 | 389.0 | 365.4 | 16.545 | SF |
| Gregory 0780 3-9H - Wellbore #1 - Design #1 | 3,329.1 | 3,313.5 | 366.1 | 351.5 | 25.097 | CC |
| Gregory 0780 3-9H - Wellbore #1 - Design #1 | 3,400.0 | 3,383.4 | 366.2 | 351.3 | 24.568 | ES |
| Gregory 0780 3-9H - Wellbore #1 - Design #1 | 4,000.0 | 3,955.7 | 401.3 | 383.3 | 22.324 | SF |
| Gregory 0780 4-9H - Wellbore #1 - Design #1 | 2,500.0 | 2,483.0 | 352.8 | 341.9 | 32.285 | CC |
| Gregory 0780 4-9H - Wellbore #1 - Design #1 | 2,700.0 | 2,681.9 | 353.1 | 341.3 | 29.945 | ES |
| Gregory 0780 4-9H - Wellbore #1 - Design #1 | 3,400.0 | 3,352.7 | 381.7 | 366.6 | 25.337 | SF |
| Janet 0780 2-16H21 - Wellbore #1 - Design #1 | 5,500.0 | 5,500.0 | 15.0 | -9.4 | 0.614 | Level 1, CC, ES, SF |
| Janet 0780 3-16H21 - Wellbore #1 - Design #1 | 3,500.0 | 3,500.0 | 30.0 | 14.5 | 1.941 | Level 4, CC |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

# SandRidge Energy

## Anticollision Summary Report

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|---|---|---|---|
| **Company:** | SandRidge Energy | **Local Co-ordinate Reference:** | Well Janet 0780 1-16H21 |
| **Project:** | North Park Basin | **TVD Reference:** | WELL @ 8151.0usft (Original Well Elev) |
| **Reference Site:** | T7N-R80W-S9 | **MD Reference:** | WELL @ 8151.0usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | Grid |
| **Reference Well:** | Janet 0780 1-16H21 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | Wellbore #1 | **Database:** | EDMProd |
| **Reference Design:** | Design #1 | **Offset TVD Reference:** | Offset Datum |

**Summary**

| Site Name<br>Offset Well - Wellbore - Design | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
|---|---|---|---|---|---|---|
| T7N-R80W-S9 | | | | | | |
| Janet 0780 3-16H21 - Wellbore #1 - Design #1 | 3,600.0 | 3,599.8 | 30.4 | 14.5 | 1.911 | Level 4, ES |
| Janet 0780 3-16H21 - Wellbore #1 - Design #1 | 17,488.6 | 17,919.2 | 675.8 | 284.1 | 1.725 | Level 4, SF |
| Janet 0780 4-16H21 - Wellbore #1 - Design #1 | 2,800.0 | 2,800.0 | 45.0 | 32.7 | 3.657 | CC |
| Janet 0780 4-16H21 - Wellbore #1 - Design #1 | 2,900.0 | 2,899.9 | 45.1 | 32.3 | 3.538 | ES |
| Janet 0780 4-16H21 - Wellbore #1 - Design #1 | 3,000.0 | 2,999.6 | 45.7 | 32.6 | 3.473 | SF |
| Mutual 0780 5-8H - Wellbore #1 - Design #1 | 2,906.8 | 2,891.0 | 678.9 | 666.2 | 53.442 | CC |
| Mutual 0780 5-8H - Wellbore #1 - Design #1 | 3,000.0 | 2,982.9 | 679.0 | 665.9 | 51.713 | ES |
| Mutual 0780 5-8H - Wellbore #1 - Design #1 | 4,700.0 | 4,575.3 | 879.4 | 855.9 | 37.381 | SF |
| Mutual 0780 6-8H - Wellbore #1 - Design #1 | 4,104.1 | 4,114.0 | 649.8 | 630.7 | 34.048 | CC |
| Mutual 0780 6-8H - Wellbore #1 - Design #1 | 4,200.0 | 4,206.8 | 650.2 | 630.6 | 33.020 | ES |
| Mutual 0780 6-8H - Wellbore #1 - Design #1 | 5,800.0 | 5,754.5 | 779.2 | 749.8 | 26.530 | SF |
| Mutual 0780 7-8H - Wellbore #1 - Design #1 | 5,122.0 | 5,145.1 | 623.0 | 598.8 | 25.782 | CC |
| Mutual 0780 7-8H - Wellbore #1 - Design #1 | 5,200.0 | 5,220.3 | 623.3 | 598.6 | 25.265 | ES |
| Mutual 0780 7-8H - Wellbore #1 - Design #1 | 6,100.0 | 6,088.2 | 675.3 | 645.1 | 22.306 | SF |
| Mutual 0780 8-8H - Wellbore #1 - Design #1 | 6,124.5 | 6,167.2 | 516.0 | 486.8 | 17.694 | CC, ES |
| Mutual 0780 8-8H - Wellbore #1 - Design #1 | 6,400.0 | 6,430.9 | 529.8 | 498.9 | 17.192 | SF |

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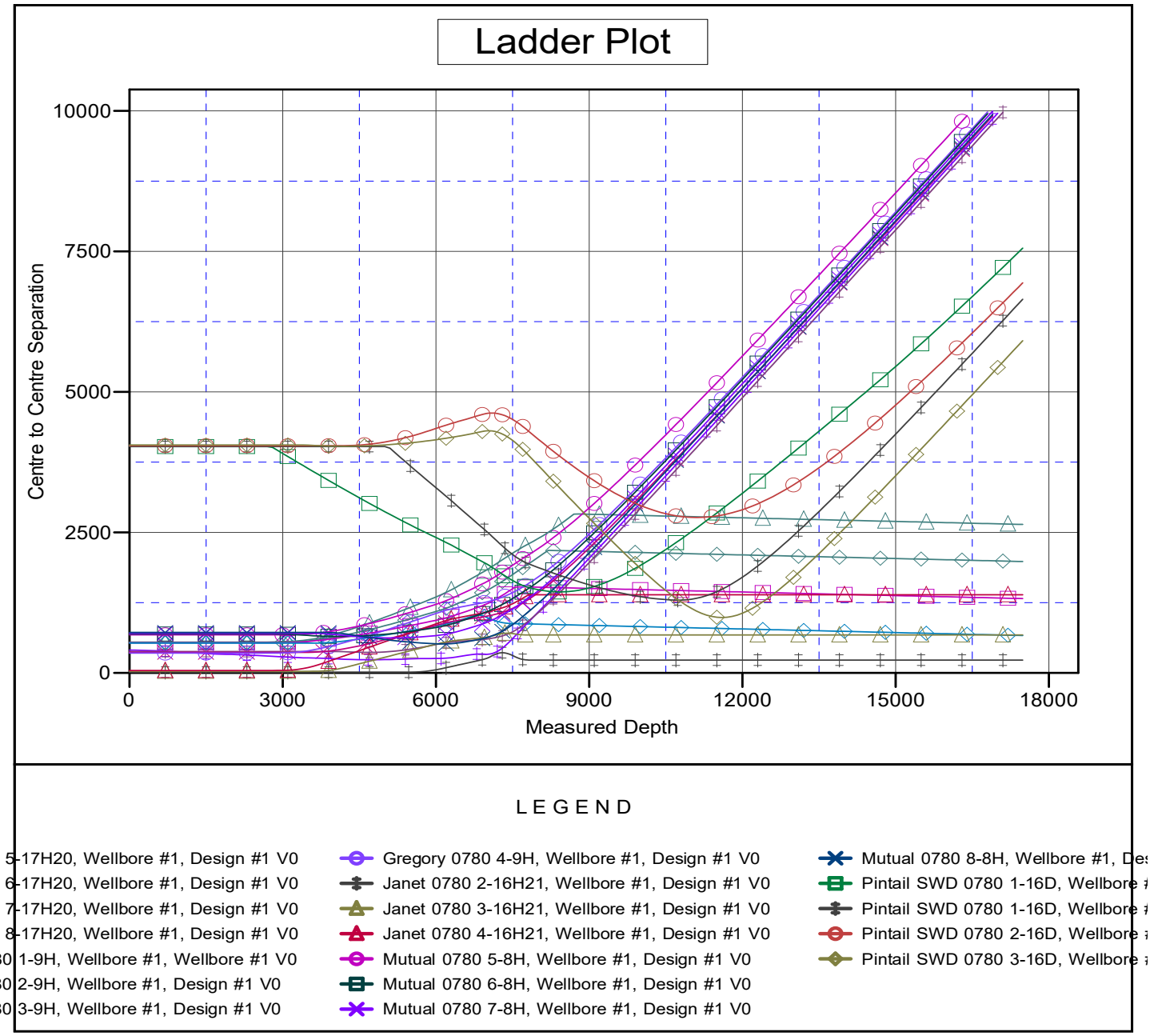
| **Reference Site:** | T7N-R80W-S9 | **MD Reference:** | WELL @ 8151.0usft (Original Well Elev) |
| **Site Error:** | 0.0 usft | **North Reference:** | Grid |
| **Reference Well:** | Janet 0780 1-16H21 | **Survey Calculation Method:** | Minimum Curvature |
| **Well Error:** | 0.0 usft | **Output errors are at** | 2.00 sigma |
| **Reference Wellbore** | Wellbore #1 | **Database:** | EDMProd |
| **Reference Design:** | Design #1 | **Offset TVD Reference:** | Offset Datum |

Reference Depths are relative to WELL @ 8151.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Janet 0780 1-16H21
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: -0.57°




CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation

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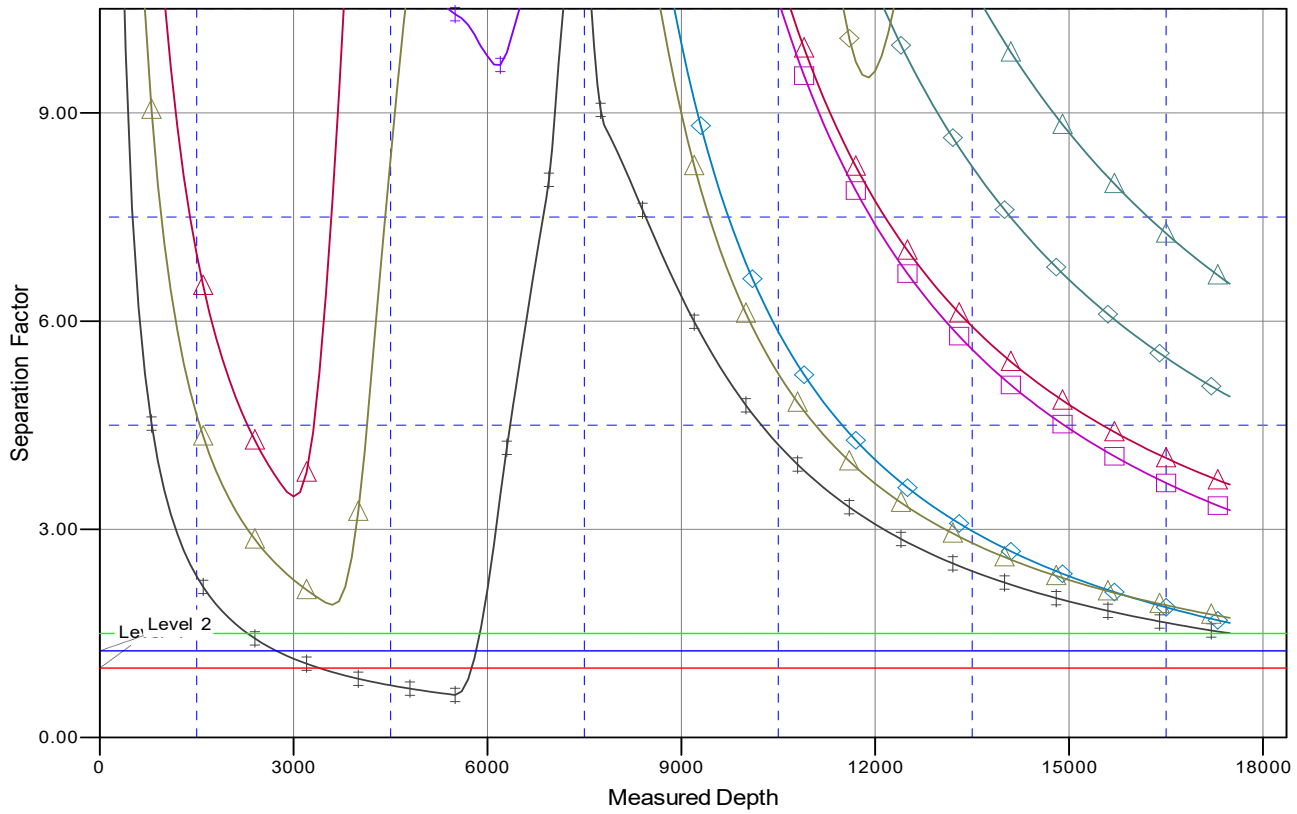
Reference Depths are relative to WELL @ 8151.0usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Janet 0780 1-16H21
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: -0.57°

## Separation Factor Plot




LEGEND

5-17H20, Wellbore #1, Design #1 V0
6-17H20, Wellbore #1, Design #1 V0
7-17H20, Wellbore #1, Design #1 V0
8-17H20, Wellbore #1, Design #1 V0
1-9H, Wellbore #1, Wellbore #1 V0
2-9H, Wellbore #1, Design #1 V0
3-9H, Wellbore #1, Design #1 V0
Gregory 0780 4-9H, Wellbore #1, Design #1 V0
Janet 0780 2-16H21, Wellbore #1, Design #1 V0
Janet 0780 3-16H21, Wellbore #1, Design #1 V0
Janet 0780 4-16H21, Wellbore #1, Design #1 V0
Mutual 0780 5-8H, Wellbore #1, Design #1 V0
Mutual 0780 6-8H, Wellbore #1, Design #1 V0
Mutual 0780 7-8H, Wellbore #1, Design #1 V0
Mutual 0780 8-8H, Wellbore #1, Des
Pintail SWD 0780 1-16D, Wellbore #
Pintail SWD 0780 1-16D, Wellbore #
Pintail SWD 0780 2-16D, Wellbore #
Pintail SWD 0780 3-16D, Wellbore #